

Supplemental Materials

for

ROLE OF H-1 AND H-2 SUBUNITS OF SOYBEAN SEED FERRITIN IN OXIDATIVE DEPOSITION OF IRON IN PROTEIN

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FIGURE S1. Mass distributions of different particle sizes of aporH-2 and aporH-2 plus 96 or 144 Fe²⁺/shell. The same experimental conditions as used in Figure 1C.

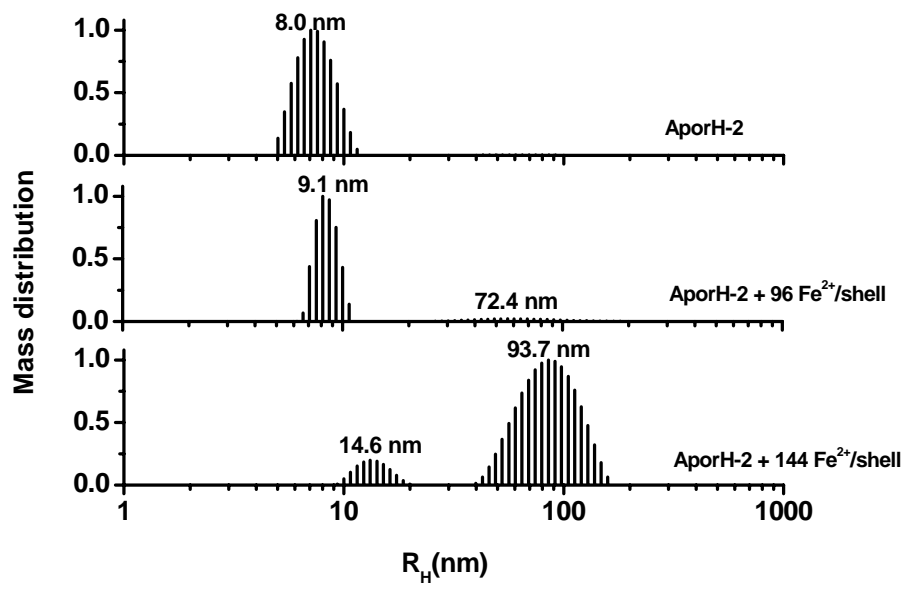


FIGURE S2. Mass distributions of different particle sizes of aporH-1 and aporH-1 plus 200 or 400 Fe²⁺/shell. The same experimental conditions as used in Figure 2C.

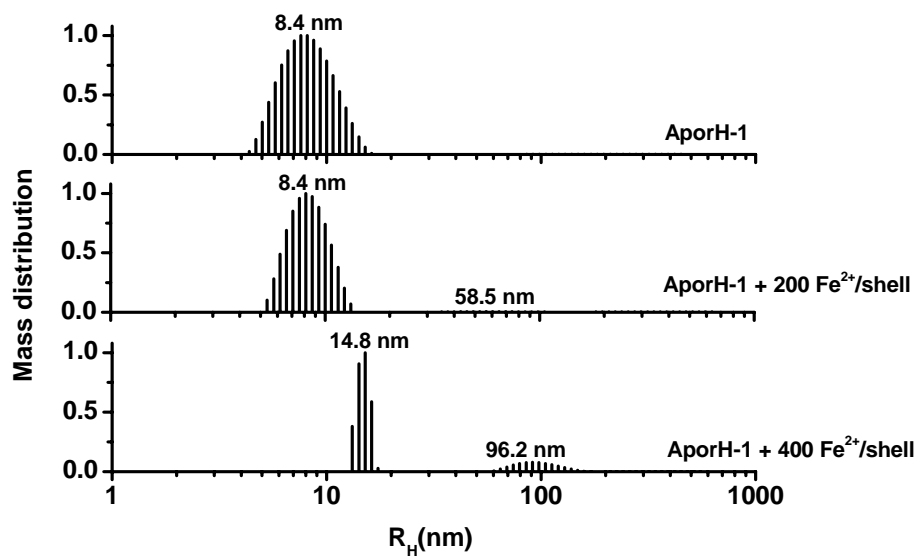


FIGURE S3. Mass distributions of different particle sizes of apoSSF and apoSSF plus 96 or 144 Fe²⁺/shell. The same experimental conditions as used in Figure 4C.

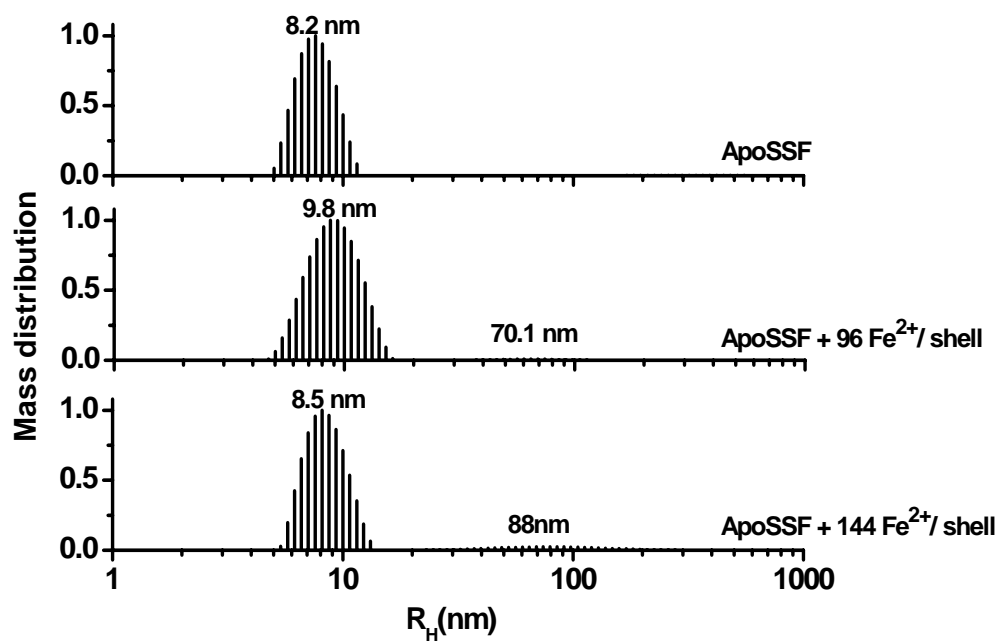


FIGURE S4 (A) Kinetic traces of the rH-1H-2 aggregation during Fe^{2+} oxidation. (B) Time course of the rH-1H-2 aggregation upon addition of Fe^{2+} or Fe^{3+} . The curve represents an average of four experimental measurements. Conditions: $[\text{rH-1H-2}] = 0.5 \mu\text{M}$ in 100 mM Mops (pH 7.0), 24 – 100 μM FeSO_4 , 25 °C.

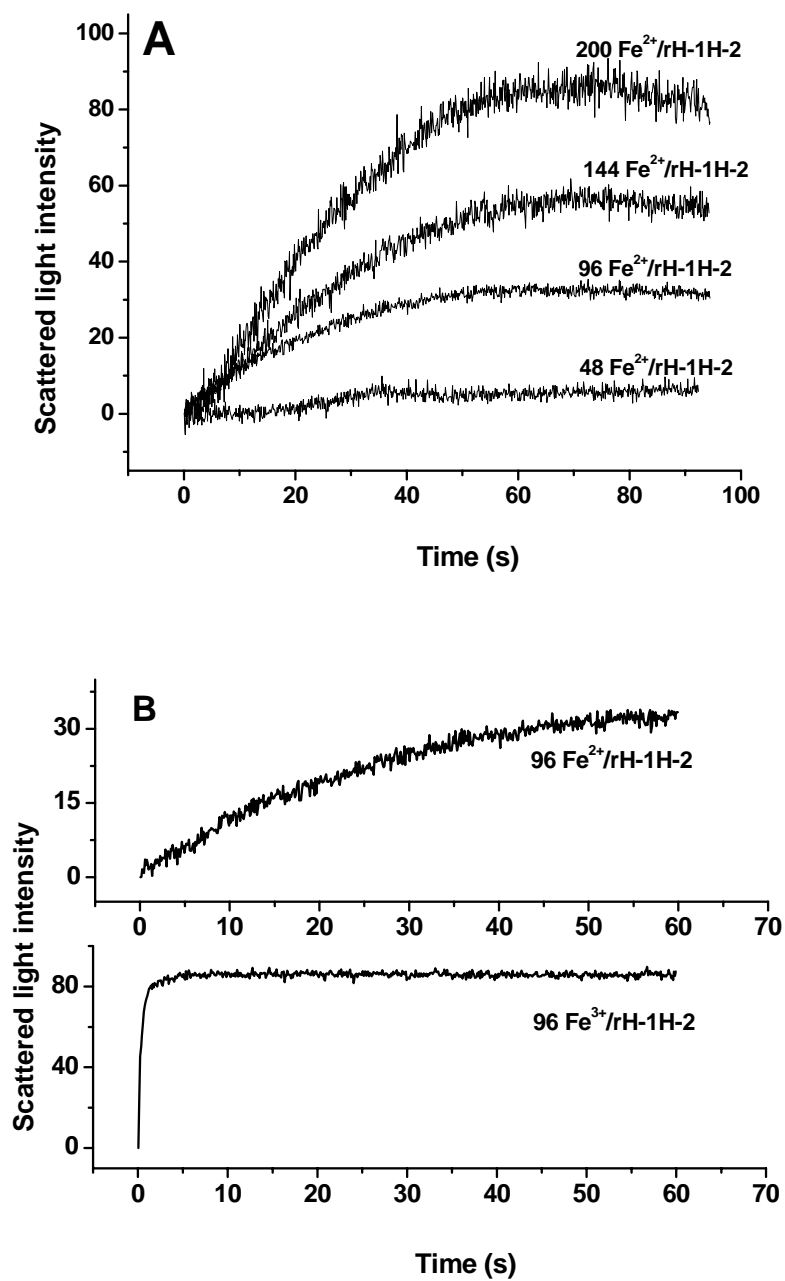


FIGURE S5 Relative scattered light intensity showing different particle size distributions induced by aerobic addition of Fe^{2+} to AporH-1 (A), AporH-2 (B) and ApoSSF (C) at different times. Conditions: 0.5 μM Apoferritin in 0.1 M Mops (pH 7.0), 200 μM Fe^{2+} , 25 $^{\circ}\text{C}$.

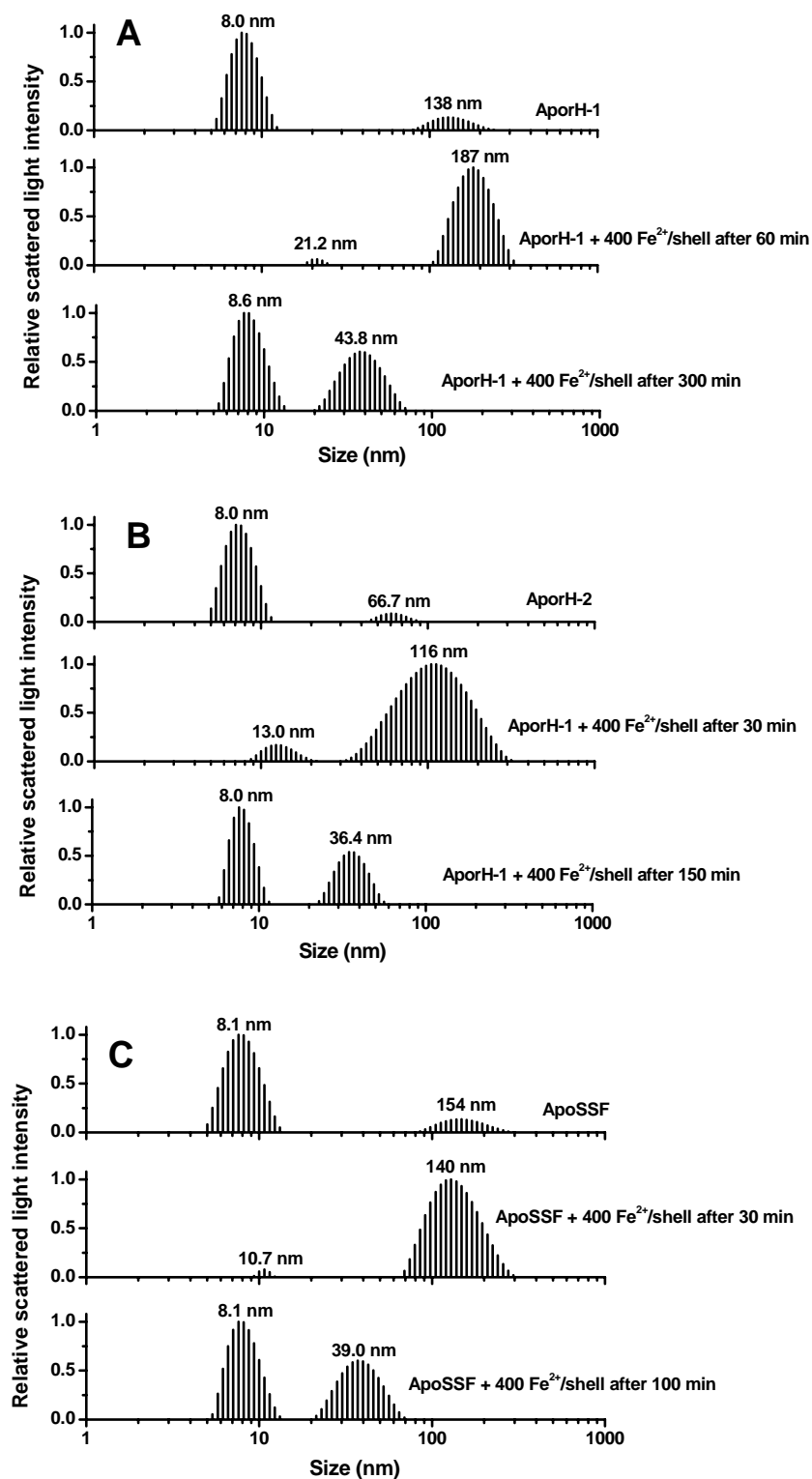


Table S1 Dynamic light scattering results from Figure S1 showing mass distributions of different particle sizes of aporH-2 and aporH-2 plus 96 or 144 Fe²⁺/shell under the same experimental conditions as used in Figure 1C.

Sample (pH 7.0)	R _h (nm)	% Area ^a	Apparent Mr (kDa) ^b	Approx no. of monomers ^c
AporH-2	8.0 ± 1.2	99.9 ± 1.1	454 ± 106	1 ± 0.2
	66.7 ± 2.8	0.1 ± 0.1	671,000 ± 42,000	1342 ± 84
AporH-2 + 96 Fe ²⁺	9.1 ± 1.1	64.0 ± 1.2	609 ± 110	1 ± 0.2
	72.4 ± 3.3	36.0 ± 2.2	81,900 ± 8,100	164 ± 16
AporH-2 + 144 Fe ²⁺	14.6 ± 1.5	1.7 ± 0.4	1869 ± 230	4 ± 0.5
	93.7 ± 3.8	98.3 ± 2.5	151,000 ± 9,100	302 ± 18

^aPercent area under each of the peaks in the mass distribution curve of Figure S1 corresponding to the percentage of species present.

^bSpherical geometry is assumed.

^cEstimated number of monomeric rH-2 molecules that constitute the aggregate. A monomer molecular weight of ~ 500 is assumed.

Table S2 Dynamic light scattering results from Figure S2 showing mass distributions of different particle sizes of apo rH-1 and rH-1 plus 200 or 400 Fe²⁺/shell under the same experimental conditions as used in Figure 2C.

Sample (pH 7.0)	R _h (nm)	% Area ^a	Apparent Mr (kDa) ^b	Approx no. of monomers ^c
AporH-1	8.4 ± 1.1	99.8 ± 0.9	501 ± 120	1 ± 0.2
	195.9 ± 4.8	0.2 ± 0.1	861,000 ± 25,000	1772 ± 50
AporH-1 + 200 Fe ²⁺	8.4 ± 1.2	95.7 ± 2.3	512 ± 110	1 ± 0.2
	58.5 ± 3.1	3.8 ± 1.1	49,600 ± 8,200	99 ± 16
AporH-1 + 400 Fe ²⁺	341.1 ± 8.4	0.5 ± 0.1	3,190,000 ± 95,000	6380 ± 190
	14.8 ± 2.2	41.0 ± 1.7	1928 ± 430	4 ± 0.8
	96.2 ± 3.7	57.3 ± 1.2	160,000 ± 14,000	320 ± 28
	355.8 ± 6.8	1.7 ± 0.1	3,530,000 ± 67,000	7060 ± 134

^aPercent area under each of the peaks in the mass distribution curve of Figure S2 corresponding to the percentage of species present.

^bSpherical geometry is assumed.

^cEstimated number of monomeric rH-1 molecules that constitute the aggregate. A monomer molecular weight of ~ 500 is assumed.

Table S3 Dynamic light scattering results from Figure S3 showing mass distributions of different particle sizes of apoSSF and apoSSF plus 96 or 144 Fe²⁺/shell under the same experimental conditions as used in Figure 4C.

Sample (pH 7.0)	R _h (nm)	% Area	Apparent Mr (kDa)	Approx no. of monomers
ApoSSF	8.3 ± 1.4	100 ± 0.7	484 ± 108	1 ± 0.2
	328.8 ± 4.2	0 ± 0.2	2,930,000 ± 87,000	5860 ± 184
ApoSSF + 96 Fe ²⁺	9.8 ± 1.1	94.5 ± 1.3	730 ± 140	1 ± 0.3
	70.1 ± 2.5	5.5 ± 0.4	75,800 ± 4,900	152 ± 10
ApoSSF + 144 Fe ²⁺	8.5 ± 1.1	61.8 ± 1.2	519 ± 110	1 ± 0.2
	88.0 ± 3.4	38.2 ± 1.5	130,000 ± 6,800	260 ± 14

^aPercent area under each of the peaks in the mass distribution curve of Figure S3 corresponding to the percentage of species present.

^bSpherical geometry is assumed.

^cEstimated number of monomeric SSF molecules that constitute the aggregate. A monomer molecular weight of ~ 500 is assumed.